

REMARKS

Claims 1 to 15 and 23 to 28 on are file for consideration. Claims 4, 16 to 22 have been withdrawn. New claims 23 to 28 have been added.

35 USC 112

The Examiner raised objections to claims 1 - 3 and 5 - 15 as indefinite. The Examiner suggested new wording for the claims in paragraphs 4 to 19 of the Office Action which suggested new wording has been adopted in the amended claims to overcome the objections.

In addition, claim 1 has been amended as has each of the other independent claims 9 and 23 to include a limitation that:

--a sealing washer which when engaged with a heated surface bonds to such surface--.

With the amendments to the claims, it is submitted the claims are now clear.

Allowable Subject Matter

The Examiner indicated that claims 9 to 12 would be allowable if rewritten to include all of the limitations of base claim 1 and the intervening claims 2, 7 and 8. Claim 9 has been rewritten in independent form to incorporate the subject matter of previous claims 1, 2, 8 and 9 but not intervening claim 7.

It is submitted that independent claim 9 is allowable in respect of its recital of: "a piston slidably disposed within the socket" wherein "the piston is biased outwardly from the socket and thereby urges the washer onto the second surface".

The subject matter of intervening claim 7 that the washer is a compressible member and of the socket having a depth less than the thickness of the washer when uncompressed is not subject matter required to be recited in claim 9 to support the recitals about the piston in claim 9 or to render claim 9 patentable.

The applicant submits that independent claim 9 and claims 10 to 12 dependent thereon are allowable.

35 USC 103 Objections

The Examiner rejected previous claim 1 as unpatentable over the Admitted Prior Art in view of Hartley (US Patent 2,512,426). The applicant respectfully submits that claim 1 as amended recites subject matter of patentable merit over any Admitted Prior Art and Hartley.

Hartley teaches, as seen in Figure 1, a screw 1 threaded into a threaded aperture in stock 4. Prior to Hartley, the screw 1 was sealed tightly into the stock 4 and afterward solder was smeared over the head of the screw. Hartley teaches providing a solder ring 5 about the shank of the screw between the underside of the head of the screw and a first opposed surface of the stock 4. The screw 1 is threaded into the aperture using a soldering iron 6 with a tip 7 in the form of a screwdriver. The heated tip 7 of the soldering iron engages and heats the screw 1 as the screw 1 is screwed in, simultaneously melting the solder ring 5. The solder ring 5 thus comes to form a solder joint between the underside of the head of the screw and the first opposed surface of the stock 4.

As taught at column 2, lines 31 and 32:

“the sealing material is melted and the screw is simultaneously sealed thereby completely tightening the screw and forcing the melted material into all of the

crevices between the screw, wire and stock...”

In Harley, the purpose of the solder ring is to solder the connection of the screw and the stock.

In Hartley, in Figure 1, the upper surface of the stock facing the underside of the head of the screw and to which the screw is bonded is the only surface to which the solder is bonded by heating. There is no solder on a lower surface of the stock. To state this another way, the solder is merely sandwiched between the heated head of the screw and the upper surface of the stock.

The Examiner, in paragraph 21 in interpreting Hartley, refers to “bonding the fastener to a first surface of the sheet” and “urging a sealing fastener onto the second surface of a sheet”. The Examiner will appreciate that in Hartley, there is only interaction with one of the upper and lower surfaces of the stock and not both.

In Hartley, the solder sealing ring is used to secure the screw 1 to the stock 4. This is in direct contrast to the invention claimed in the claims of the present invention in which the sealing member does not serve a function of securing the fastener to the metal sheet. Rather, as seen in Figure 5 of this application, the stud is secured to the sheet with the undersurface of the head of the stud engaging a first surface 18 of the sheet and the shank of the stud passing through an opening in the sheet. The sealing washer is provided on the second surface 20 of the sheet. The sealing washer is not sandwiched between the undersurface of the head of the stud and the opposed first surface of the sheet as is taught by Hartley.

The sealing washer in the present invention is provided such that in subsequent use of the connecting plate as illustrated in Figures 7 to 9, when the stud is used for securing the

element to another element, the sealing ring will be sandwiched between the sheet and the other element.

The sealing washer in the present invention is separate from the means of securing the stud to the metal sheet. The stud member is bonded as by welding to the metal sheet. The bonding of the stud to the metal sheet is prior to the securing of the sheet to another element. The sealing washer serves no function in respect of securing the stud member on the sheet metal.

The teachings of Hartley are not relevant to the invention of the present application in that Hartley teaches in the context of a threaded screw to be secured to a stock by a combination of: (1) threaded engagement and (2) solder, simultaneously, by use of a heated screwdriver, to melt the solder at the same time as rotating the screw.

With the invention claimed in claim 1 in this application, the stud is not secured by being threaded onto the sheet, but rather it is bonded thereto by welding of its head to the sheet to have its threaded shank pass through a hole in the sheet for later use. The sealing washer recited in claim 1 of this application does not secure the stud to the sheet, rather it is provided on a second surface about the threaded stud such that in later use, the sealing washer may form a seal with another element.

The objective of Hartley is to simultaneously tighten a threaded fastener into a stock 4 while at the same time melting solder between the fastener and stock to set the fastener.

This objective has no equivalent in the context of the present invention.

In the present invention, a threaded fastener is such as a stud 14 is secured to sheet 12 by a bonding process such as welding. The stud 12 is not threadably engaged with the

sheet 12, rather its head 24 and, particularly, the undersurface of the head 24, is welded to the first surface 18 of the sheet 12.

To apply the teachings of Hartley to any Admitted Prior Art would be to provide solder between the head of the stud 14 and the first surface of sheet 12 and heat the same. This is no more than soldering the head of the stud to the first surface of the sheet 12 and does not teach the use of a separate sealing washer on the second surface of the sheet.

The teachings of Hartley using a screwdriver or socket wrench to apply the fastener to the sheet 12 is not relevant to this invention since the stud 14 is not related or connected to the sheet 12 by threaded engagement. Moreover, in the Admitted Prior Art, the stud is soldered to the sheet 12. To provide a solder ring in the context of the Admitted Prior Art might be useful in a situation where it is desired to secure the stud to the sheet by soldering, however, does not teach a method for securing to a different surface the separate sealing washer.

The purpose of the solder ring in Hartley is to secure the threaded screw in the stock against removal by rotation. No such solder ring is required or useful in the context of the present invention.

A person skilled in the art would not, on considering Hartley and any Admitted Prior Art, have any proper basis for considering that the separate sealing washer recited in claim 1, which has nothing to do with the securing of the stud to the sheet, be coupled to the sheet using the heat generated from welding. In the invention as claimed, there is no equivalent to the solder washer in Hartley, nor any need for any tool to rotate the stud with a screwdriver or wrench to apply the stud to the sheet, nor any need for applying heat via a heated screwdriver or wrench tool since heat is generated in welding.

Moreover, as contrasted with Hartley, the sealing element recited in claim 1 is applied to the second surface of the sheet and not to the first surface between the head of the stud and the first surface. The sealing washer recited in claim 1 in being applied to the second surface of the sheet is provided for a function totally unrelated to the securing of the stud to the metal sheet. The reference to Hartley and the other references referred to by the Examiner relate merely to securing a fastener to a plate. They do not teach or suggest that waste heat from a step of securing the head of a stud to a first surface of a metal sheet could also be used to secure another element to the sheet which element serves no function in securing the stud to the sheet. In the past, as in the Admitted Prior Art, persons used a second heating step to apply a sealing washer. Prior art does not teach any persons as appreciating the advantages of the present invention, that is, avoiding a second step by using the waste heat from bonding of the head of a stud to a first surface to bond a sealing washer for future use to a second surface. Significant advantages in cost savings, energy savings and time arise with the present invention which are not apparent or taught by or obvious from any combination of any Admitted Prior Art and Hartley or any of the other references.

For those reasons, the applicant submits that amended claim 1 recites subject matter of patentable merit and favourable allowance is respectfully requested.

New independent claim 23 has been placed on file which includes all the limitations of claim 1 and, therefore, for the same reasons as discussed regarding claim 1, it is submitted that claim 23 recites patentable subject matter over the references cited.

New claims 26 to 28 have been placed on file to specifically recite the feature of the sealing washer is adapted to be used to form a seal when compressed between the second surface of the metal sheet and another element to be secured to the metal sheet with the stud. It

is submitted that it is clear that any Admitted Prior Art and Hartley do not teach the subject matter of these new claims 26 to 28.

The applicant submits that all the claims now on file are allowable.

The applicant further submits that claim 1 is generic over dependent claim 4.

Favourable consideration is respectfully requested.

Respectfully submitted,

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